



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,459	07/29/2003	Yasuhiro Iijima	Q76028	4842
23373	7590	05/31/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				HITESHEW, FELISA CARLA
ART UNIT		PAPER NUMBER		
		1722		

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/628,459	IIJIMA, YASUHIRO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Felisa C. Hiteshew	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-9 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1)  Notice of References Cited (PTO-892)                    4)  Interview Summary (PTO-413)  
 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)                    Paper No(s)/Mail Date. \_\_\_\_\_.  
 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date see attached paper.                    5)  Notice of Informal Patent Application (PTO-152)  
                                                                                   6)  Other: \_\_\_\_\_.

Art Unit: 1722

**Priority**

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

**Information Disclosure Statement**

The PTOL 1449 has been received, reviewed and considered.

**Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima, et al (U. S. Pat. No. 6,716,796 B1).

Iijima, et al '796 B1 teaches a method of producing a polycrystalline layer or "thin film" of a type C rare earth oxide, such as Y<sub>2</sub>O<sub>3</sub>, having a favorable crystal orientation on a substrate by applying ion beam-assisted technology, which makes it possible to align the c-axes of the oxide crystal grains of the type C rare earth oxide with a direction

perpendicular to the substrate surface whereon thin film is to be formed, and to align the a-axes and b-axes of the crystal grains of the type C rare earth oxide with a plane parallel to the film forming surface of the substrate (see column 3, lines 47-68). The polycrystalline substrate can be formed from a heat resistant metal tape made of a Ni alloy, and the polycrystalline thin film can be formed from Y<sub>2</sub>O<sub>3</sub>. Iijima, et al '796 B1 also teaches a method of producing a polycrystalline thin film comprising oxide crystal grains which have a crystal structure of a type C rare earth oxide represented by one of the formulas Y<sub>2</sub>O<sub>3</sub>, Sc<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub>, Sm<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>2</sub>O<sub>3</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, Lu<sub>2</sub>O<sub>3</sub> and Pm<sub>2</sub>O<sub>3</sub>, being formed on the polycrystalline substrate surface whereon the thin film is to be formed, with the grain boundary inclination angles between the same crystal axes of different crystal grains along the plane parallel to the surface of the polycrystalline substrate whereon the film is to be formed being controlled within 30 degrees, can be preferably used as a base for forming various thin films thereon, and makes it possible to achieve good superconductive properties for the case when the thin film to be formed is a superconductive layer, can achieve good properties (i.e. optical and magnetic properties, see column 5, line 55-68 and column 6, lines 1-13, respectively). The polycrystalline substrate is set to a temperature in a range from 200 to 400 °C. and an ion beam of Kr<sup>+</sup> or Xe<sup>+</sup> ions of a combination of these ions is generated from an ion source with the energy of the ion beam being set in a range from 100eV to 300eV, while the incident angle of the ion beam irradiating the substrate is set in a range from 50 to 60 degrees when depositing the particles generated from the

Art Unit: 1722

target, which is made of the same elements as those of the polycrystalline thin film, onto the polycrystalline substrate (column 4, lines 14-39).

The difference being that Iijima, et al '796 B1 does not exactly teach a method of producing a polycrystalline thin film, "...wherein the polycrystalline substrate does not comprise YSZ or MgO, and no layer having YSZ or MgO is formed between said film forming surface of the polycrystalline substrate and said polycrystalline thin film". However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to modify and optimize the process parameter limitation, as taught by Iijima, et al '796 B1, to encompass the process parameter limitation of the instant invention. The motivation being that better crystal orientation can be achieved when the incident angle of the ion beam is controlled within a range from 50 to 60 degrees, this improving the quality of optical and magnetic thin films, or thin films for circuit wiring to be formed thereon.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might reasonably infer from the teachings. In re Opprecht 12 USPQ 2d 1235, 1236 (CAFC 1989); In re Bode 193 USPQ 12; In re Lamberti 192 USPQ 278; In re Bozek 163 USPQ 545, 549 (CCPA 1969); In re Van Mater 144 USPQ 421; In re Jacoby 135 USPQ 317; In re LeGrice 133 USPQ 365; In re Preda 159 USPQ 342 (CCPA 1968).

Expected beneficial results are evidence of obviousness, just as unexpected beneficial results are evidence of unobviousness. In re Novak 16 USPQ 2d 2041 (Fed. Cir., BPAI 1989); In re Hoffman 194 USPQ 126 (CCPA 1977); In re Skoll 187 USPQ

Art Unit: 1722

481 (CCPA 1975); In re Skoner 186 USPQ 80 (CCPA 1975); In re Garshon 152 USPQ 602 (CCPA 1967).

It is sufficient that the reference of Iijima, et al '796 B1 clearly suggest doing what the applicant(s) have done. In re Gershon 152 USPQ 602.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTOL-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta, can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197

  
FELISA HITESHEW  
PRIMARY EXAMINER  
AU1722